Accident / Incident Report Closed

Unit/Department	Process Area	Site	Report Number
North Operations-Elyria	**Tableting – Building 10**	**ELYRIA**	**0084-NOPS-14-0092**
Report Date	Incident Date	Incident Time	Copied From
07/17/2014	**07/16/2014**	**09:45 AM**	
Incident Location		Team Leader / Supervisor	Reported By
Building 10 ammonia scrubber.		**Terrence M Vanderbosch**	**Douglas A Jordan**
Title of Event (Limit to 90 characters)		Category	Division / Bus. Group / Subgroup Code
Ammonia scrubber malfunction		☐ Safety & Health ☐ Environmental	**CC / G-CCP**

Incident Classification

☐ Near Miss	☐ Property Loss	☐ Contractor
☒ Process Safety	☐ Citation / NOV	☐ Contractor Injury / Illness
☐ Injury / Illness	☐ Health Exposure	☐ Contract Injury / Illness
☒ Spill / Release	☐ Inspection	☐ PSM
☐ Permit / Regulatory Deviation	☐ Major Incident	☐ Plant Upset
☐ Fire	☐ Non-Occupational	☐ EHS Management System Failure
☒ Odor Complaint	☐ RMP	☐ Other

Describe Event / What Happened

At 9:50 PM an operator from the North end called the control room on the South end to alert the South end Group Leader of smoke filling the building in building 10 and the department being evacuated. After arriving on the scene with 2 ERT members we could see what looked like smoke coming out of the ammonia scrubber on top of the roof of building 10 and being blown to the East. I met with the operator that was standing outside of building 10 by the nitric acid tanks while at the same time calling for maintenance that was at the South end to come assist. The operator then informed the Group Leader that he thought the scrubber malfunctioned and that it had sent too much nitric acid to the scrubber. He said that he thought he had the acid line valve closed at this time to stop more from going into the scrubber. At this time a member of the maintenance crew arrived and shut off breakers to the pump that was supplying the nitric acid to the scrubber. All members of the South end and the tunnel kiln operator were accounted for. When it was determined that this was indeed a ammonia vapor cloud and not smoke or steam, the buildings in the immediate area were taped off and later, a much larger area to include the entire North end was taped off. As oncoming shift members arrived, ERT members were gathered, including a member who was familiar with the scrubber. At 11:15 the first team entered the building with full acid suits and SCBA's and drained the scrubber and sent it to waste water. They then began flushing it with water and the plume of ammonia vapor quickly stopped. After silencing the alarms and flushing the scrubber with water, the first team was able to leave the building at 11:47. After a final walk through of all buildings, the all clear was given at 12:05.

Immediate Corrective Action or Response

Evacuate and account for all operators. Send ERT team in to drain/flush the scrubber.

Immediate Cause

At this time it is believed to be a malfunction of the scrubber acid control system.

Spill Release Type(s)	**Non RQ Spill / Release; Odor Complaint; Report to Government Agency (Report only)**

Chemical(s) Involved	CAS #	Phy. State	Air	Land	Water	Contmt	Units
Ammonia	7664-41-7	Liquid	0	0	0	0	lbs

Disposition of Material	**Washed down roof and scrubber stack.**

Weather Conditions	Skies: **Partly Cloudy**	Temperature: **78 F**	Wind Direction: **SW**	Wind Speed: **6**

Agencies Notified (F) Follow up (I) Immediate	Person Called	Notified By	Date/Time Notified	BASF Contact
I Ohio EPA	Christine McPhee	Leon Zavodnik	7/16/2014	Leon Zavodnik

				11:45:00 PM	
F	Ohio EPA	Christine McPhee	Tim Anglin	7/18/2014 10:45:00 AM	Tim Anglin

Cause Narrative

The primary pH controller for the ammonia scrubber was shut off when the unit was started back up. The secondary pH controller was on but the pH probe was not properly calibrated. It was giving a reading of 14pH which kept the system requesting for more nitric acid. The metering pump as a result ran continuously for 9 hours. As soon as ammonia was introduced to the day tank in preparation to start our strikes, the ammonia exhaust began to release.

Contributing Causes	Root/Primary Causes		
The scrubber should not be able to start if either of the controllers are offline.	15 - Design Input/Output	17 - Design Output LTA	17 - Design Output LTA
Operator failed to check the pH for proper levels at startup of operation.	208 - Personal Performance	208 - Personal Performance	208 - Personal Performance

Explanation of Root Causes

208-208-208 Operator on 2nd shift did'nt check the pH levels after before starting up on his shift.

15 - 17 -17 The primary controller didn't power up. The backup controller did power up.

Any known or potential off-site impacts?	**No**	PSM Incident?	**No**	Estimated Cost:	**500.00 USD**
Investigation Team	**Kirk Sullenberger; Jack Pettry; Abdallah Ahmed; Thomas Copa; Mark Goodman**				

Item	Corrective Action(s) to prevent recurrence	Responsible Person	Target Date	Final Closed Date	VC Req	VE Req
1	Program the control logic to make it more reliable.	Kirk Sullenberger/BASF-CATALYSTS/BASF	02/15/2015	08/21/2014	N	N
2	Add sign to switch to verify that the pH is in operating range.	Thomas Copa/NA/BASF	08/21/2014	08/21/2014	N	N
3	Include as a topic in the August Safety Meeting. Review the operating procedure. Discuss the different variables of a scrubber and the importance of understanding the PH levels.	Charles Evans/BASF-CATALYSTS/BASF	09/04/2014	08/30/2014	N	N

Approved By:

Manager / Dept. Head	**Abdallah Ahmed 08/18/2014 10:12 AM**
EHS Unit Coordinator	**Tim Anglin 08/25/2014 07:51 AM**
	Confidential

Accident / Incident Report Closed

Unit/Department	Process Area	Site	Report Number
North Operations-Elyria		ELYRIA	0084-NOPS-14-0095
Report Date	Incident Date	Incident Time	Copied From
07/21/2014	07/20/2014	12:00 PM	
Incident Location		Team Leader / Supervisor	Reported By
Kneader area		Charles Evans	Mark Goodman
Title of Event (Limit to 90 characters)		Category	Division / Bus. Group / Subgroup Code
Kneader Bin Vent Trouble		☐ Safety & Health ☐ Environmental	CC / G-CCP

Incident Classification

☐ Near Miss	☐ Property Loss	☐ Contractor
☒ Process Safety	☐ Citation / NOV	☐ Contractor Injury / Illness
☐ Injury / Illness	☐ Health Exposure	☐ Contract Injury / Illness
☒ Spill / Release	☐ Inspection	☐ PSM
☐ Permit / Regulatory Deviation	☐ Major Incident	☐ Plant Upset
☐ Fire	☐ Non-Occupational	☐ EHS Management System Failure
☐ Odor Complaint	☐ RMP	☐ Other

Describe Event / What Happened

Kneader dust collection failed to work properly and dust escaped the kneader by leaking past the end seals on the mixer. Suction line was reported to have been plugged.

Immediate Corrective Action or Response

Kneader bin vent suction line was washed down and rodded out. Unit was taken down for service later and the shaft seals tightened, suction line will be augured out again, heat trace on line checked, line to rental wyssmont was blanked. Kneader was shutdown after batch in it today was completed.

Immediate Cause

Suction to kneader is less than it should be for an unknown reason. lines where suction could be lost have been closed off.

Spill Release Type(s)	Non RQ Spill / Release						
Chemical(s) Involved	CAS #	Phy. State	Air	Land	Water	Contmt	Units
Cu 1986 Pill Mix	N/A	Solid	0	0	0	25	lbs
Disposition of Material	Material was vacuumed up and disposed of by returning drum to hazardous waste building.						
Weather Conditions	Skies:	Temperature:	Wind Direction:	Wind Speed:			

Cause Narrative

Process was changed over from rental wyssmont back to the kneader for drying. Kneader Bin Vent system was running at a lower air flow capacity and it was not noticed until there was a problem with the system. Historically the suction line from the binvent to the kneader builds up with material at the beginning of the suction line. Periodically this line is cleaned with a plumbing snake and on each batch the line is sprayed down with water. While running a batch on 7/20 powder material and steam escaped from the shaft seals on the kneader allowing dust to escape into building 10. Initial troubleshooting let to the conclusion that the suction line to the bin vent was restricted. Efforts were made to clean the line and they improved the condition temporarily. On Monday morning the condition was a little worse and it was discovered that the bin vent was operating at 204-208cfm instead of the set point of 300cfm. It was thought that the suction was being lost to the rental wyssmont which was still attached to the bin vent. A blank was installed and the fan started. There was no change in system capacity, system was still running at 204cfm. The Kneader was shutdown for further investigation and to reinstall the flexicon conveyor and the fitz mill. Bin vent line was disassembled and checked again for buildup and none was found. At that point the fan became suspect that it wasn't generating the rated capacity. The fan was rewired to reverse the direction of the motor and started. CFM for the bin vent increased to 380cfm. The fan

was wired incorrectly. Further investigation revealed that when production was switched back to the kneader from the wyssmont dryer the fan was not "bumped" for rotation. An e-mail indicated that the fan was not checked for rotation and there was no follow up to the e-mail to check rotation.

Contributing Causes	Root/Primary Causes		
bump test for newly installed blower was not performed prior to startup.	55 - Administrative/Management Systems	67 - Standards, Policies, or Administrative Controls (SPACs) Not Used	71 - Enforcement LTA
Operator should have observed lower than normal air flow as shown on the HMI. Set point of 300 was displayed but we never got over 208cfm through the bin vent.	28 - Equipment Reliability Program Implementation LTA	51 - Routine Equipment Rounds LTA	54 - Activity Implementation LTA
No PSSR was completed or performed for the conversion back to the Kneader for the drying operation.	55 - Administrative/Management Systems	100 - Document and Configuration Control	103 - Verification of Design/FieldChanges LTA (No PSSR)

Explanation of Root Causes

55/67/71 Root cause because bump test for rotation is a standard practice that should have been performed before signing off permit. Sponsor of contractor should have made sure it was completed before equipment was returned to operations.

21/51/54 Operations ran system with less air flow than the set point without understanding the significance of low air flow. This should have been noted to management as a system deviation.

55/100/103 Changes were made to the kneader process without a proper review

Any known or potential off-site impacts?	No	PSM Incident?	No	Estimated Cost:	7,200.00 USD
Investigation Team	Mark Goodman; Jack Pettry; Ted Meek; Alpha L Smith; Ken Pugh				

Item	Corrective Action(s) to prevent recurrence	Responsible Person	Target Date	Final Closed Date	VC Req	VE Req
1	Review AIM report and communicate that when a process is operating outside of established parameters it should be communicated to group leader, lead person and engineer. Also note problems in the MOD on the last page which is the MOD Processing Problem sheet.	Charles Evans/BASF-CATALYSTS/BASF	09/30/2014	08/30/2014	N	N
2	Set up a meeting with salaried employees to discuss incident, and the importance of proper use of SPAC's.	Abdallah Ahmed/NA/BASF	09/30/2014	09/25/2014	N	N

Approved By:	
Manager / Dept. Head	**Abdallah Ahmed 08/09/2014 05:27 PM**
EHS Unit Coordinator	**Jason M Therrien 08/08/2014 10:29 AM**
Employee	**Mark Goodman 08/08/2014 10:31 AM**

BASF
The Chemical Company

Safety Data Sheet
Cu 1986 PILL MIX

1. Product and Company Identification

Use: Chemical

Company
BASF CORPORATION
100 Campus Drive
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information
CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP

2. Hazards Identification

Emergency overview

WARNING:
CONTAINS MATERIAL WHICH MAY CAUSE CANCER.
RISK OF CANCER DEPENDS ON ROUTE, DURATION AND LEVEL OF EXPOSURE.
PROLONGED OR REPEATED EXPOSURE MAY CAUSE LUNG DAMAGE.
Overexposure may cause liver and kidney damage, and blood disorders.
Irritating to eyes, respiratory system and skin.
MAY CAUSE ALLERGIC RESPIRATORY REACTION.
MAY CAUSE ALLERGIC SKIN REACTION.
HARMFUL IF SWALLOWED.
MAY CAUSE PAIN, NAUSEA, VOMITING AND DIARRHEA.
Prolonged or excessive exposure may result in copper poisoning.
May cause convulsions, shock, organ failure, coma and/or death.
May cause neurological disturbances.

State of matter: solid
Colour: black
Odour: odourless

Potential health effects

Primary routes of exposure:
Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:
May result in symptoms similar to those of the common cold. Harmful if swallowed. Ingestion may cause gastrointestinal disturbances. May cause convulsions, shock, organ failure, coma and/or death. The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion:

Irritating to respiratory system. Irritating to eyes. Irritating to skin. The product has not been tested. The statement has been derived from the properties of the individual components.

Sensitization:
May cause allergic skin reaction. May cause allergic respiratory reaction. The product has not been tested. The statement has been derived from the properties of the individual components.

Chronic toxicity:

Carcinogenicity: May cause cancer. The International Agency for Research on Cancer (IARC) has classified this substance as a Group 1 (known) human carcinogen. NTP listed carcinogen The American Conference of Governmental Industrial Hygienists (ACGIH) has classified this substance as Group A1 - confirmed human carcinogen. The product has not been tested. The statement has been derived from the properties of the individual components.

Repeated dose toxicity: Overexposure may cause blood abnormalities. Prolonged and repeated exposure may cause lung damage. A damage of blood cells (methemoglobinemia) can not be excluded. The substance can cause damage to blood forming organs after repeated ingestion. Prolonged or repeated exposure may cause neurological disturbances. Overexposure may cause blood or liver damage. May cause liver and kidney damage. Prolonged or excessive exposure may result in copper poisoning.

Medical conditions aggravated by overexposure:
Individuals with pre-existing history of central nervous system, kidney and liver disorders may be at increased risk and should seek medical advice prior to exposure. Contact may aggravate pulmonary disorders. May aggravate existing skin conditions. Individuals with pre-existing diseases of the skin, respiratory disorders or impaired function for the liver/kidneys may have increased susceptibility to excessive exposures. Individuals with pre-existing diseases of the respiratory system, skin or eyes may have increased susceptibility to excessive exposures. Individuals with pre-existing diseases of the kidney may have increased susceptibility to excessive exposures. Individuals with preexisting blood disorders may be severely affected by exposure.

Signs and symptoms of overexposure:
metallic taste in mouth, hemolytic anemia, skin eruptions, itching

Potential environmental effects

Aquatic toxicity:
Very toxic (acute effect) to aquatic organisms. May cause long-term adverse effects in the aquatic environment. The product has not been tested. The statement has been derived from the properties of the individual components.

Degradation / environmental fate:
Not applicable for inorganic substances.

3. Composition / Information on Ingredients

CAS Number	Content (W/W)	Chemical name
12018-10-9	60.0 - 70.0 %	Chromium copper oxide (Cr2CuO4)
1317-38-0	20.0 - 30.0 %	copper oxide
1313-13-9	1.0 - 5.0 %	manganese dioxide
1344-09-8	1.0 - 5.0 %	Silicic acid, sodium salt
7782-42-5	1.0 - 5.0 %	graphite
13548-42-0	0.0 - 0.5 %	Copper chromate

4. First-Aid Measures

General advice:
First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air. If breathing difficulties develop, aid in breathing and seek immediate medical attention.

If on skin:
Wash thoroughly with soap and water. Consult a doctor if skin irritation persists.

If in eyes:
In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. Immediate medical attention required.

If swallowed:
If person is conscious and can swallow, give two glasses of water. Immediate medical attention required. If vomiting occurs, keep head lower than hips to prevent aspiration.

Note to physician

Treatment:	Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Flash point:	not applicable
Autoignition:	not applicable
Lower explosion limit:	not applicable
Upper explosion limit:	not applicable
Self-ignition temperature:	not self-igniting

Additional information:
Use extinguishing measures to suit surroundings.

Hazards during fire-fighting:
toxic vapours
No particular hazards known.

Protective equipment for fire-fighting:
Wear self-contained breathing apparatus and chemical-protective clothing.

Further information:
Product itself is non-combustible; fire extinguishing method of surrounding areas must be considered. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

6. Accidental release measures

Personal precautions:
Avoid dust formation. Do not breathe dust. Avoid contact with skin and eyes. Use personal protective clothing. Information regarding personal protective measures see, chapter 8.

Environmental precautions:
Do not discharge into drains/surface waters/groundwater.

Cleanup:
Dike spillage. Sweep up or vacuum small pieces and dusts and place in appropriate container for disposal. Reclaim for processing if possible. Avoid raising dust.

7. Handling and Storage

Handling

General advice:
Ensure adequate ventilation. Avoid dust formation.

Protection against fire and explosion:
The product does not contribute to the spreading of flames, nor is it self combustible, not explosive.

Storage

General advice:
Keep container tightly closed. Keep container dry because product takes up the humidity of air.

Storage incompatibility:
General advice: Segregate from incompatible substances.

8. Exposure Controls and Personal Protection

Components with workplace control parameters

manganese dioxide	OSHA	CLV 5 mg/m3 (manganese (Mn));
	ACGIH	TWA value 0.2 mg/m3 (manganese (Mn));
graphite	OSHA	PEL 5 mg/m3 Respirable fraction ; PEL 15 mg/m3 Total dust ; TWA value 15 millions of particles per cubic foot of air ;
	ACGIH	TWA value 2 mg/m3 Respirable fraction ;
Copper chromate	OSHA	TWA value 0.005 mg/m3 ; OSHA Action level 0.0025 mg/m3 ; Skin Designation ; The substance can be absorbed through the skin. CLV 0.1 mg/m3 ; PEL 1 mg/m3 (Chromium (Cr));
	ACGIH	TWA value 0.05 mg/m3 (Chromium (Cr));
Chromium copper oxide (Cr2CuO4)	OSHA	PEL 0.5 mg/m3 (Chromium (Cr)); PEL 1 mg/m3 (Chromium (Cr));
copper oxide	OSHA	PEL 1 mg/m3 Dust and mist (copper (Cu));

Advice on system design:
Provide local exhaust ventilation to maintain recommended P.E.L. Ensure adequate ventilation.

Personal protective equipment

Respiratory protection:
Wear appropriate certified respirator when exposure limits may be exceeded. Observe OSHA regulations for respirator use (29 CFR 1910.134).

Hand protection:
Wear chemical resistant protective gloves.

Eye protection:
Safety glasses with side-shields.

Body protection:
Full-body protective clothing

General safety and hygiene measures:
Avoid contact with the skin, eyes and clothing. Avoid inhalation of dust. Wash thoroughly after handling.

9. Physical and Chemical Properties

Form:	cylinders	
Odour:	odourless	
Colour:	black	
pH value:	6	(25 °C) (as aqueous suspension)
Melting point:		not determined
Boiling point:		not relevant
Vapour pressure:		contains water
Bulk density:	1,600 kg/m3	(20 °C)
Vapour density:		not applicable
Partitioning coefficient n-octanol/water (log Pow):		The value has not been determined because the substance is inorganic.
Viscosity, dynamic:		not applicable
Solubility in water:	3.0 g/l	(25 °C)

10. Stability and Reactivity

Conditions to avoid:
No conditions to avoid anticipated.

Substances to avoid:
glycerol, lithium, strong oxidizing agents, strong acids, reducing agents, strong alkalies, flammable, oxidizable substances

Hazardous reactions:
The product is chemically stable.

Decomposition products:
carbon oxides, gases/vapours, metallic oxides

Thermal decomposition:
> 150 °C
Thermal decomposition takes place above the indicated temperature when product is mixed with oil. Strong exothermic decomposition.

Corrosion to metals:
No corrosive effect on metal.

Oxidizing properties:
not fire-propagating

11. Toxicological information

Carcinogenicity

Information on: Copper chromate
The substance caused cancer by inhalation in animal studies. EU-classification

Other Information:

The product has not been tested. The statement has been derived from the properties of the individual components. The product has been assessed on the basis of the components' available data. To some extent data gaps exist for individual components. According to our present knowledge and experience dangers which are not covered by the current labeling are not to be expected.

12. Ecological Information

Other adverse effects:

The product has not been tested. The statements on ecotoxicology have been derived from the properties of the individual components. The product has been assessed on the basis of the components' available data. To some extent data gaps exist for individual components. According to our present knowledge and experience dangers which are not covered by the current labeling are not to be expected.

13. Disposal considerations

Waste disposal of substance:
Dispose of in accordance with local authority regulations. Disposal requirements are dependent on the hazard classification and will vary by location and the type of disposal selected. All waste materials should be reviewed to determine the applicable hazards (testing may be necessary). One or more components of this product exhibit toxic characteristics as determined by the Toxicity Characteristic Leaching Procedure.

Container disposal:
Dispose of in accordance with national, state and local regulations. Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

RCRA: D007

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Hazard class:	9
Packing group:	III
ID number:	UN 3077
Hazard label:	9, EHSM
Marine pollutant:	YES
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains COPPEROXIDE)

Air transport
IATA/ICAO

Hazard class:	9
Packing group:	III
ID number:	UN 3077
Hazard label:	9, EHSM
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains COPPEROXIDE)

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

OSHA hazard category: IARC 1, 2A or 2B carcinogen; NTP listed carcinogen; OSHA regulated carcinogen; Chronic target organ effects reported; OSHA PEL established; ACGIH TLV established

EPCRA 311/312 (Hazard categories): Chronic; Acute

CERCLA RQ	CAS Number	Chemical name
10 LBS	12018-10-9; 13548-42-0	Chromium copper oxide (Cr2CuO4); Copper chromate

State regulations

State RTK	CAS Number	Chemical name
MA, NJ, PA	12018-10-9	Chromium copper oxide (Cr2CuO4)
NJ	1317-38-0	copper oxide
NJ	1313-13-9	manganese dioxide
MA, PA	7782-42-5	graphite
MA, NJ, PA	13548-42-0	Copper chromate

CA Prop. 65:
THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

16. Other Information

Recommended use: Industrial catalyst

NFPA Hazard codes:
Health : 2 Fire: 0 Reactivity: 0 Special:

HMIS III rating
Health: 2¤ Flammability: 0 Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:
BASF NA Product Regulations
msds@basf.com

MSDS Prepared on: 2010/10/28

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE , IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY BASF HEREUNDER ARE GIVEN GRATIS AND BASF ASSUMES NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.
END OF DATA SHEET

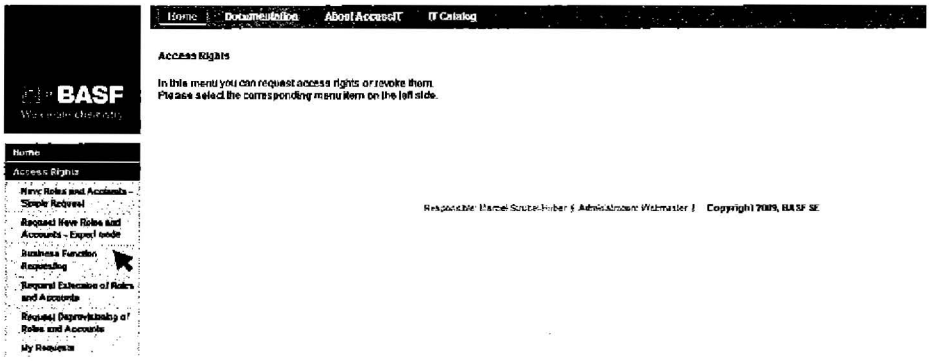
AccessIT Quick Guide

Access Requesting

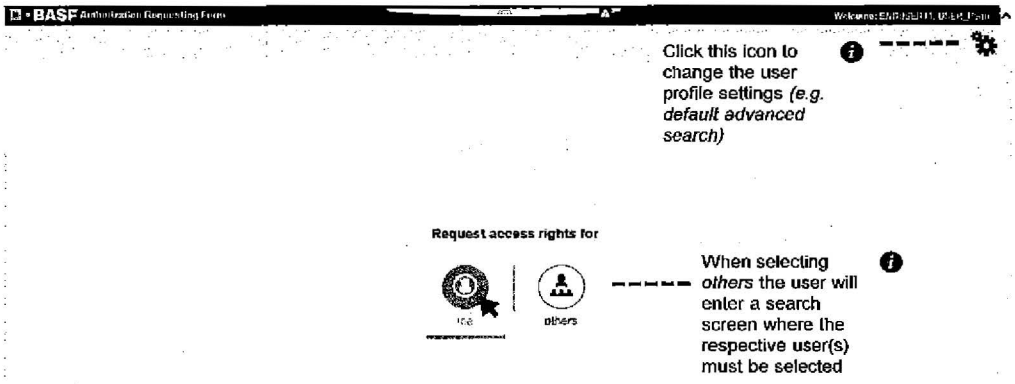
for End users

BASF
We create chemistry

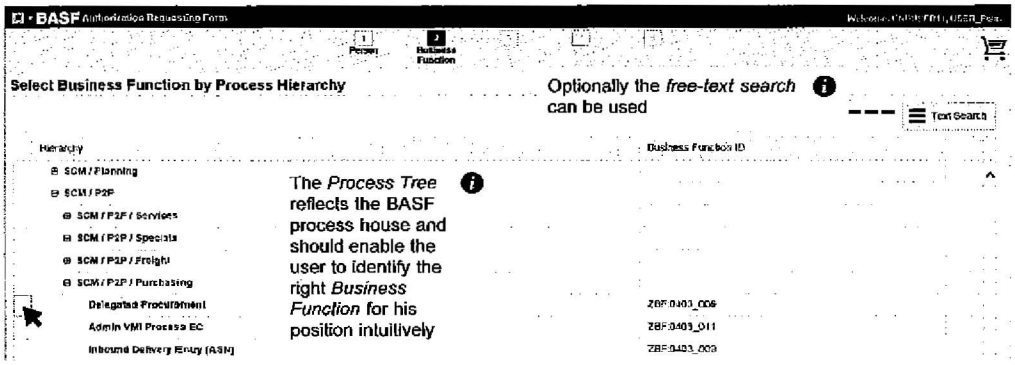
Login to AccessIT and select *Business Function Requesting* below the *Access Rights Menu*



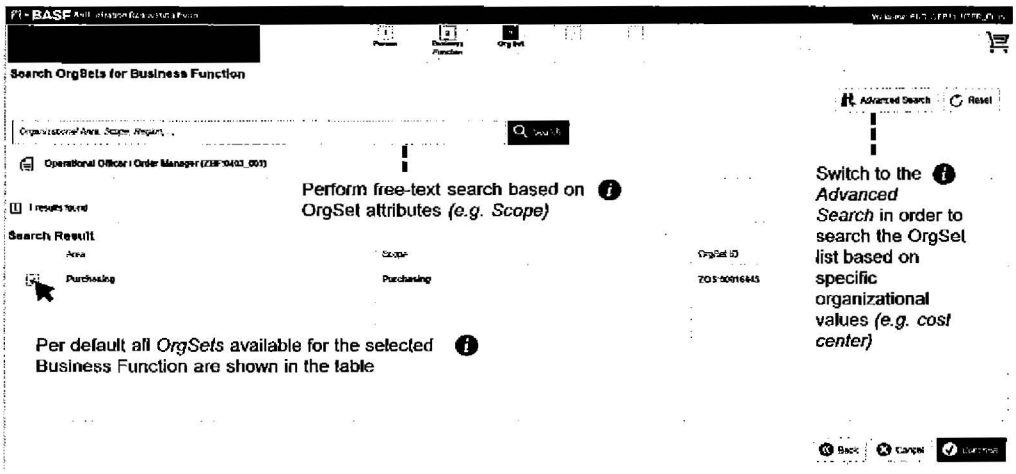
Select if you would like to request access for *yourself* or *another user*



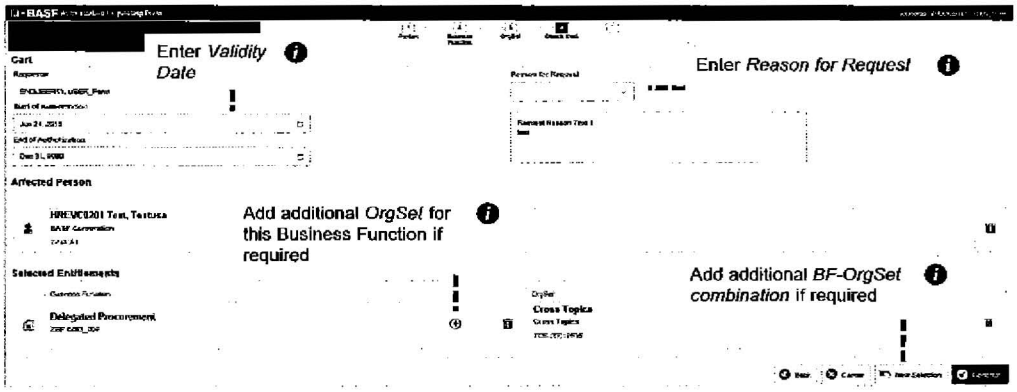
Browse through the *Process Tree* in order to identify a suitable Business Function *(what to do)*



Based on the Business Function select an OrgSet(s) *(where to do)*



Validate and Submit Cart to initiate the approval workflow *(with Supervisor and Access Approver)*



Frequently Asked Questions

Is it possible to request multiple Business Functions / OrgSets at once?

Yes. You are able to select multiple Business Functions / OrgSets within the same request. In order to select an additional OrgSet for a Business Function, click the '+' button in the Cart next to the selected Business Function. For an additional Business Functions, open the Cart and click on the 'New Selection' button.

Note: If you selected multiple other users, only the same access can be requested for all of them.

Can I request Business Functions even if I am not officially rolled out yet?

No. If you are not rolled out yet to the Business Function concept, a message will be displayed when entering the requesting module that you are not activated yet.

What happens to my access rights if I change the department within BASF?

On the day of the transfer all access rights are automatically removed. However, 30 days before transfer day , Business Functions can be requested for the new position, but only if the transfer is already maintained within the HR system

For detailed information please refer to the AccessIT Access Requesting Documentation [Link]

Accident / Incident Report Closed

Unit/Department	Process Area	Site	Report Number
North Operations-Elyria	**Tableting – Building 10**	**ELYRIA**	**0084-NOPS-16-0048**
Report Date	Incident Date	Incident Time	Copied From
03/10/2016	**03/09/2016**	**08:45 PM**	
Incident Location		Team Leader / Supervisor	Reported By
#2 Micro Mill		**David D Hritsko**	**Ted Meek**
Title of Event (Limit to 90 characters)		Category	Division / Bus. Group / Subgroup Code
Dust collector leaking on #2 Mirco Mill		☐ Safety & Health ☐ Environmental	**CC / G-CCP**

Incident Classification

☐ Near Miss	☐ Property Loss	☐ Contractor
☐ Process Safety	☐ Citation / NOV	☐ Contractor Injury / Illness
☐ Injury / Illness	☐ Health Exposure	☐ Contract Injury / Illness
☒ Spill / Release	☐ Inspection	☐ PSM
☐ Permit / Regulatory Deviation	☐ Major Incident	☐ Plant Upset
☐ Fire	☐ Non-Occupational	☐ EHS Management System Failure
☐ Odor Complaint	☐ RMP	☐ Other

Describe Event / What Happened

Operator started #2 micro mill with D0713 product and dust blew out into the atmosphere

Immediate Corrective Action or Response

Shut down equipment

Immediate Cause

under investigation

Spill Release Type(s)	**Non RQ Spill / Release**						
Chemical(s) Involved	CAS #	Phy. State	Air	Land	Water	Contmt	Units
D0713 Rhen Base	N/A	Solid	1	0	0	0	lbs

Disposition of Material	**Cleaned up**		
Weather Conditions	Skies:	Temperature:	Wind Direction:	Wind Speed:

Cause Narrative

The damper on the manual dust collector was open too much causing too much suction causing material to blow around filter. The operating range of this dust collector is not detailed out in a procedure. If the damper is open too much, the dP raises and has the potential of allowing product to travel around the filters. In addition, it was identified that the door gaskets for the filters were not changed out in some time. It is not good practice to reuse door gaskets after their first compression.

Contributing Causes	Root/Primary Causes		
There isn't a robust procedure for changing out and installing filters	111 - Procedures	112 - Not Used	116 - No Procedure for Task
The damper on the dust collector was all the way open	138 - Human Factors Engineering	140 - Workplace Layout	141 - Controls/Displays LTA

Explanation of Root Causes

111/112/116 - Need a procedure to detail out the proper way of changing out filters, including the door gaskets.
138/140/141 - Operating parameters not clearly defined or easy to control to.

Any known or potential off-site impacts?	PSM Incident?	Estimated Cost:

	No		No	1,000.00 USD
Investigation Team	David D Hritsko; William O Tuttle; Mark Goodman; Ted Meek			

Item	Corrective Action(s) to prevent recurrence	Responsible Person	Target Date	Final Closed Date	VC Req	VE Req
1	Modify or develop a procedure on how to change out and install filters on the micro mills	William O Tuttle/NA/BASF	06/17/2016	05/23/2016	N	N
2	Install DP gauge and blast gate on mill/dust collector	Mark Goodman/NA/BASF	06/30/2016	05/16/2016	N	N
3	Write/update the operating procedure for the micro mills that details out operating parameters.	William O Tuttle/NA/BASF	05/31/2016	05/23/2016	N	N

Approved By:	
Manager / Dept. Head	**Abdallah Ahmed 04/06/2016 12:49 PM**
EHS Unit Coordinator	**Tim Anglin 04/06/2016 01:25 PM**
Safety & I.H.	**Nancy Gallagher 04/06/2016 12:48 PM**
	Confidential

Accident / Incident Report Closed

Unit/Department	Process Area	Site	Report Number
South Operation-Elyria	**General Catalyst – Building 31**	**ELYRIA**	**0084-SOPS-16-0167**
Report Date	Incident Date	Incident Time	Copied From
08/17/2016	**08/17/2016**	**01:30 AM**	
Incident Location		Team Leader / Supervisor	Reported By
Building 31 roof at F2 Stack		**Brian Beller**	**Brian Beller**
Title of Event (Limit to 90 characters)		Category	Division / Bus. Group / Subgroup Code
Haze discharge from F2 scrubber stack		☐ Safety & Health ☐ Environmental	**CC / G-CCP**

Incident Classification

☐ Near Miss	☐ Property Loss	☐ Contractor
☐ Process Safety	☐ Citation / NOV	☐ Contractor Injury / Illness
☐ Injury / Illness	☐ Health Exposure	☐ Contract Injury / Illness
☒ Spill / Release	☐ Inspection	☐ PSM
☐ Permit / Regulatory Deviation	☐ Major Incident	☐ Plant Upset
☐ Fire	☐ Non-Occupational	☐ EHS Management System Failure
☐ Odor Complaint	☐ RMP	☐ Other

Describe Event / What Happened

While doing inspections for the General Catalyst Department it was noticed that a haze was hanging in the air on the East side of the building, upon inspection it was found that F2 scrubber discharge stack was blowing out a haze toward the east side of the building. The scrubber was inspected and the level was good and the pump was showing a flow of 90 gal/min. The pH probe was showing a 7.3 reading. The tank was then tested with pH paper and found that it was at a 0 pH. The make up water was turned on and the tank was drained out and refilled to try and increase the pH of the scrubber water. The scrubber was brought up to approximately a 5 pH and then the stack was reinspected only to find it still blowing out a haze. Some condensate from the stack was also tested with some pH paper and found to have an extremely low pH as well, 0-1. The system was then shut down to prevent further discharge. This scrubber is being used to draw vapors off of tank 6 and 7 while we have been reducing Nickel Nitrate to a 17% solution concentration in the tanks. Please note that the pH controller is only for display purposes it does not maintain the flow of chemicals to maintain a set pH on this scrubber.

Immediate Corrective Action or Response

Flush out system, then turn off blower.

Immediate Cause

Unknown

Spill Release Type(s)	**Non RQ Spill / Release**						
Chemical(s) Involved	CAS #	Phy. State	Air	Land	Water	Contmt	Units
Nitric Acid	7697 37 2	Gas	1	0	0	0	lbs

Disposition of Material	**Released to air.**			
Weather Conditions	Skies:	Temperature:	Wind Direction:	Wind Speed:

Cause Narrative

Multiple processes were running to F2 Scrubber. Design parameters were unknown. Make-up water may have been inadequate to handle such quantities.

Contributing Causes	Root/Primary Causes		
No documentation on equipment design and operating parameters	18 - Equipment Records	19 - Equipment Design Records	19 - Equipment Design Records LTA

	LTA				
Any known or potential off-site impacts?	No	PSM Incident?	No	Estimated Cost:	1,000.00 USD
Investigation Team	**Kirk Sullenberger; Nancy Gallagher; Kristen Kaput; John Bodmann; Andrea Bal; Terrence M Vanderbosch; Tim Anglin; William Grodecki; Andrew Myers; Valerie Douglas**				

Item	Corrective Action(s) to prevent recurrence	Responsible Person	Target Date	Final Closed Date	VC Req	VE Req
1	Identify an engineer to review the maintenance files/documentation for F2 scrubber to determine and document operating parameters. Add an action item into the system.	Noemi Trent/BASF-CATALYSTS/BASF	10/12/2016	11/02/2016	N	N

Approved By:		
Manager / Dept. Head	**Leon Zavodnik**	**09/12/2016 06:02 PM**
EHS Unit Coordinator	**Tim Anglin**	**09/12/2016 11:08 AM**
	Confidential	

WATER
Multi-Parameter Controller
Run
Menu
Back
Enter

Accident / Incident Report Closed

Unit/Department	Process Area	Site	Report Number
South Operation-Elyria	**General Catalyst – Building 31**	**ELYRIA**	**0084-SOPS-16-0170**
Report Date	Incident Date	Incident Time	Copied From
08/18/2016	**08/18/2016**	**01:30 AM**	
Incident Location		Team Leader / Supervisor	Reported By
Building 31 at #8 Dust Collector		**Brian Beller**	**Brian Beller**
Title of Event (Limit to 90 characters)		Category	Division / Bus. Group / Subgroup Code
#8 Dust Collector Visible Discharge from Stack		☐ Safety & Health ☐ Environmental	**CC / G-CCP**

Incident Classification

☐ Near Miss	☐ Property Loss	☐ Contractor
☐ Process Safety	☐ Citation / NOV	☐ Contractor Injury / Illness
☐ Injury / Illness	☐ Health Exposure	☐ Contract Injury / Illness
☒ Spill / Release	☐ Inspection	☐ PSM
☐ Permit / Regulatory Deviation	☐ Major Incident	☐ Plant Upset
☐ Fire	☐ Non-Occupational	☐ EHS Management System Failure
☐ Odor Complaint	☐ RMP	☐ Other

Describe Event / What Happened

While doing inspections the shift supervisor noticed a haze outside of building 31 at the 3rd floor east roof access door. Upon investigation a visible discharge was noticed coming out of the discharge stack for #8 Dust Collector. The dust collector was immediately turned off and locked out to inspect the bag house. While locking out the unit is was noticed that one of the banks of the blowdowns is disconnected. The bags were inspected and the stage that the blowdowns were turn off on had an excessive buildup of powder on them. Three bags were identified as damaged. In addition, it was determined that the dust collector was backed up. The unit was inspected earlier in the day at 5pm with no visible discharge. This unit is used for dust collection for #1 hopper, Spiral elevator, Extruder, and the east Pfaudler loading station.

Immediate Corrective Action or Response

Shut down dust collector blower.

Immediate Cause

unknown

Spill Release Type(s)	**Non RQ Spill / Release**

Chemical(s) Involved	CAS #	Phy. State	Air	Land	Water	Contmt	Units
Siral 40	N/A	Dust	1	0	0	0	lbs

Disposition of Material	**Released to atmosphere**			
Weather Conditions	Skies:	Temperature:	Wind Direction:	Wind Speed:

Cause Narrative

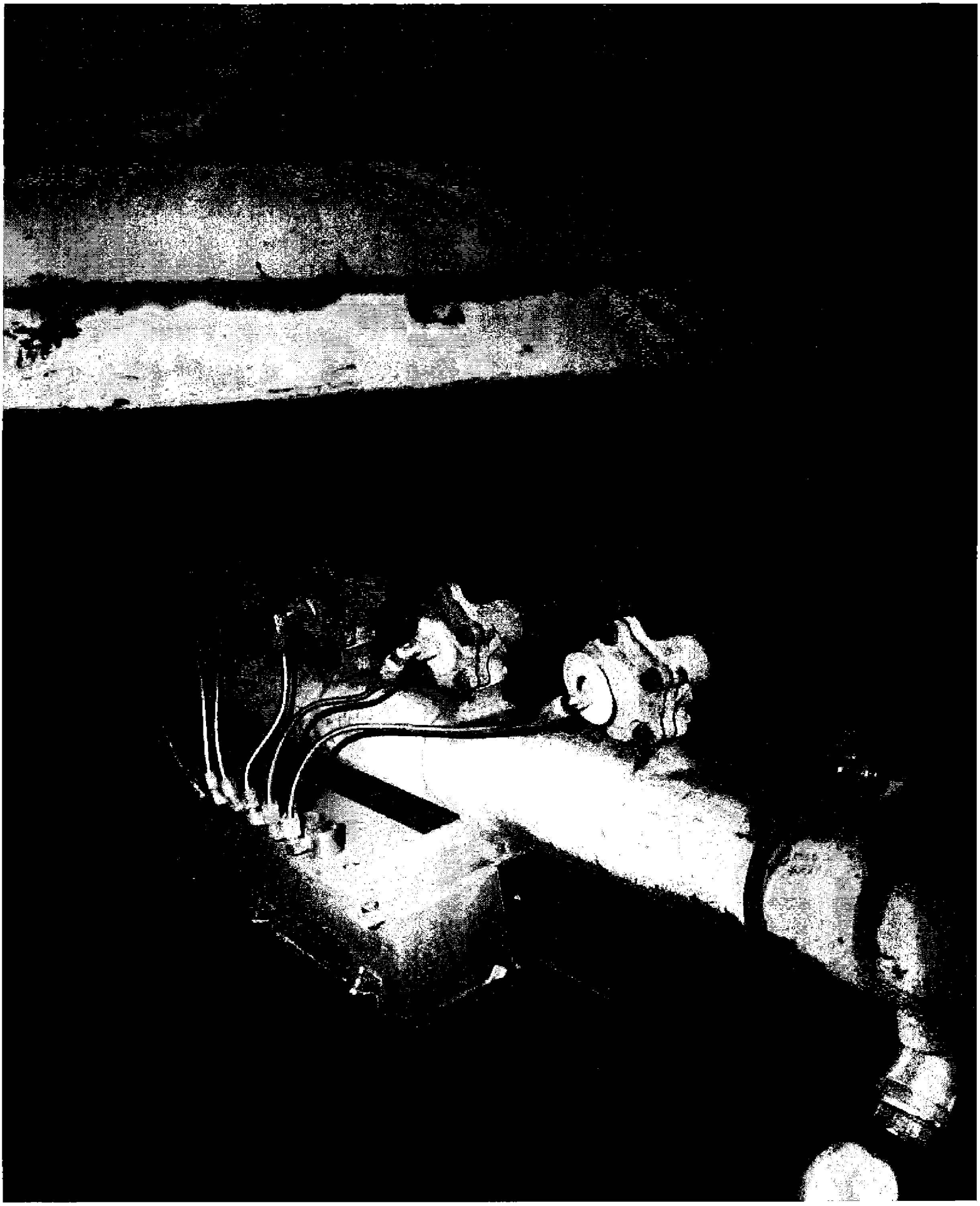
One of the banks of the blowdowns was disconnected allowing excessive build up on the bags. It also appears that the RV was not operating properly allowing the DC to build up material.

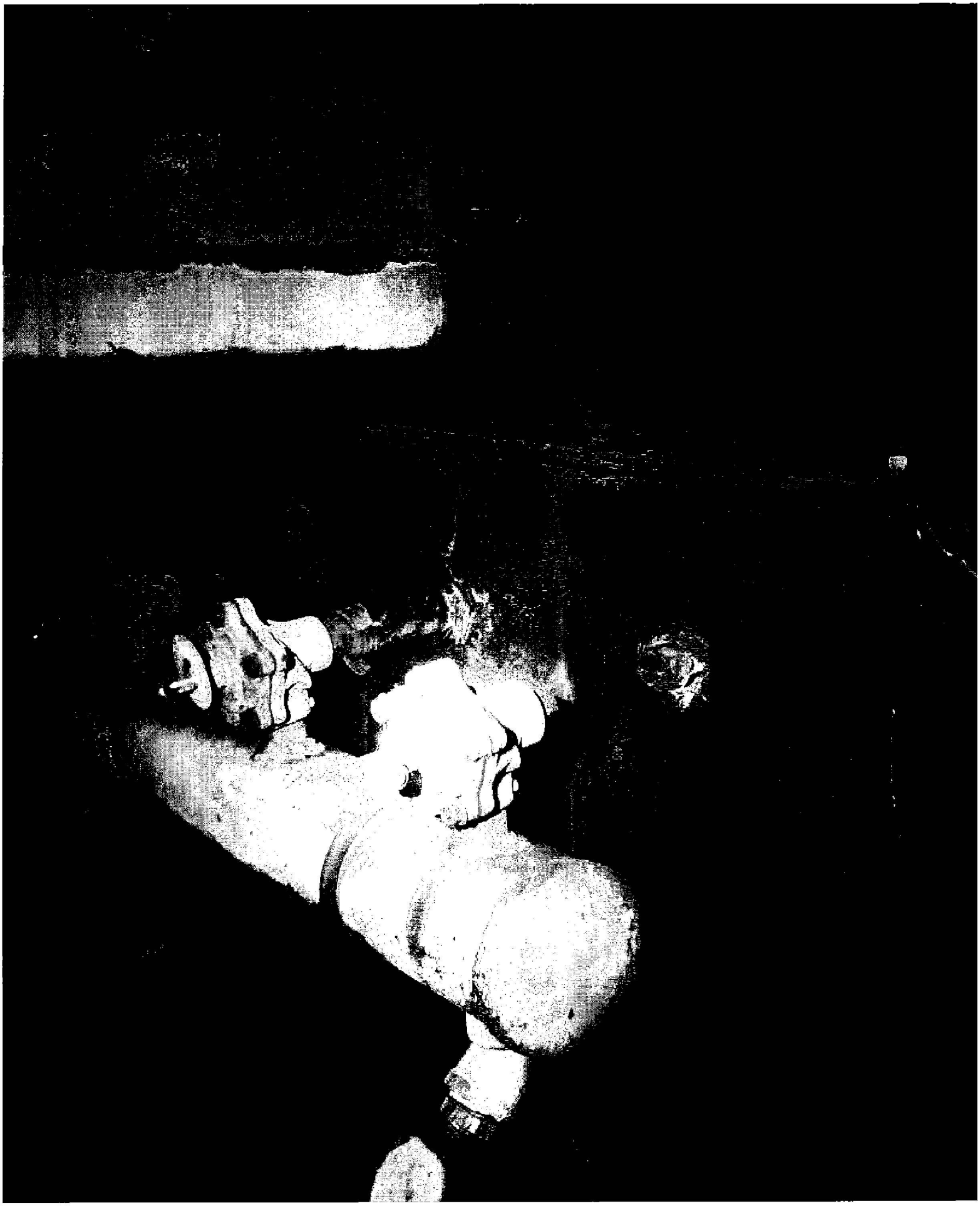
Contributing Causes	Root/Primary Causes		
The corroded or plugged blowdown was not fully repaired which allowed for excessive build up on the bags.	28 - Equipment Reliability Program Implementation LTA	29 - Corrective Maintenance LTA	31 - Repair Implemtation LTA
Rotolock was not allowing powder to empty out of the dust box which allowed for excessive powder build up.	138 - Human Factors Engineering	160 - Intolerant System	161 - Errors Not Detectable

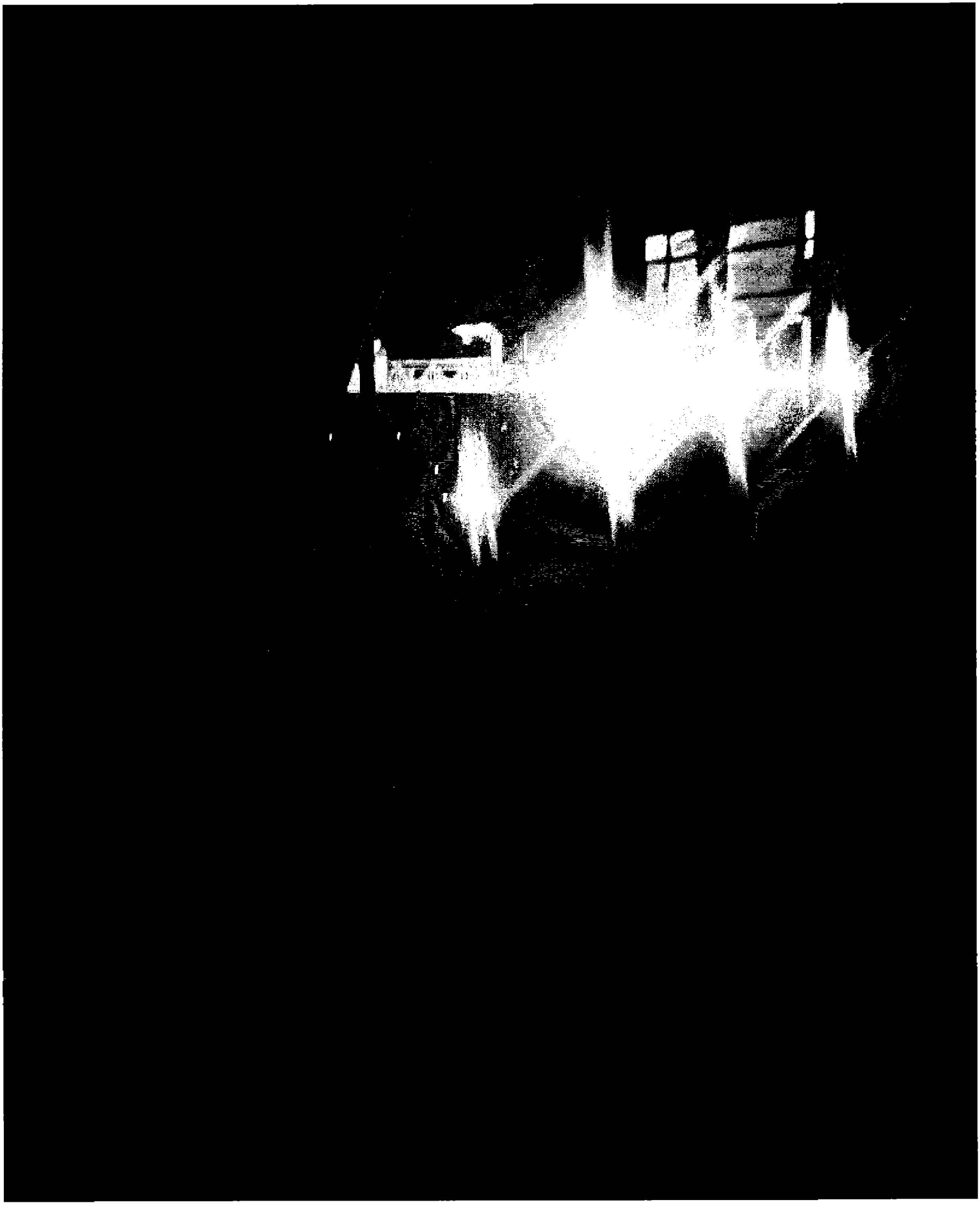
Any known or potential off-site impacts?	No	PSM Incident?	No	Estimated Cost:	2,000.00 USD
Investigation Team	Andrew Myers; Nancy Gallagher; Valerie Douglas; Andrea Bal				

Item	Corrective Action(s) to prevent recurrence	Responsible Person	Target Date	Final Closed Date	VC Req	VE Req
1	Reevaluate the PMs on the DC to make sure that they are effective in identifying issues with the DC's.	Lee McClish/NA/BASF	11/04/2016	11/02/2016	N	N
2	Write WO to pull and inspect Rotolock to ensure that it is operating properly.	Andrew Myers/NA/BASF	09/30/2016	09/21/2016	N	N

Approved By:	
Manager / Dept. Head	**Leon Zavodnik 09/14/2016 05:13 PM**
EHS Unit Coordinator	**Tim Anglin 09/14/2016 01:05 PM**
	Confidential







Accident / Incident Report Closed

BASF
We create chemistry

Unit/Department	Process Area	Site	Report Number
South Operation-Elyria		**ELYRIA**	**0084-SOPS-14-0076**
Report Date	Incident Date	Incident Time	Copied From
05/31/2014	**05/31/2014**	**07:00 AM**	
Incident Location		Team Leader / Supervisor	Reported By
Tunnel Kiln area (building 10)		**Raymond A Navarro**	**John R Crawford**
Title of Event (Limit to 90 characters)		Category	Division / Bus. Group / Subgroup Code
Dust collector release		☐ Safety & Health ☐ Environmental	**CC / G-CCP**

Incident Classification

☐ Near Miss	☐ Property Loss	☐ Contractor
☐ Process Safety	☐ Citation / NOV	☐ Contractor Injury / Illness
☐ Injury / Illness	☐ Health Exposure	☐ Contract Injury / Illness
☒ Spill / Release	☐ Inspection	☐ PSM
☐ Permit / Regulatory Deviation	☐ Major Incident	☐ Plant Upset
☐ Fire	☐ Non-Occupational	☐ EHS Management System Failure
☐ Odor Complaint	☐ RMP	☐ Other

Describe Event / What Happened

At the beginning of the shift it had been reported that powder was found in the small alleyway between building 7 an building 10 (East of both buildings). Upon investigation it was discovered that the black powder was not only found in the alleyway but also on the roof of building 10 (see attached picture) and building 7 (see attached picture). As a precaution we closed the north end sluice gate and began our clean up efforts. Additional investigation and quick interviews with veteran employees pointed at the Bi mill dust collector as the possible source. While cleaning the area GL Navarro opened two cartridge receptacles on the dust collector for a quick view and discovered that at least on of the cartridges had been installed backwards - see attached picture.

Immediate Corrective Action or Response

Clean up of the area (see attached pictures) and toted off all drains as we were washing down the area and the roofs.

Immediate Cause

Still under investigation but it would appear that the installation of at least one of the cartridges backwards may have been the cause.

Spill Release Type(s)	**Non RQ Spill / Release**

Chemical(s) Involved	CAS #	Phy. State	Air	Land	Water	Contmt	Units
V 2046, contains 45% divanadium pentoxide	N/A	Solid	10	0	0	0	lbs

Disposition of Material	**Cleaned up and disposed of as hazardous waste**

Weather Conditions	Skies:	Temperature:	Wind Direction:	Wind Speed:

Cause Narrative

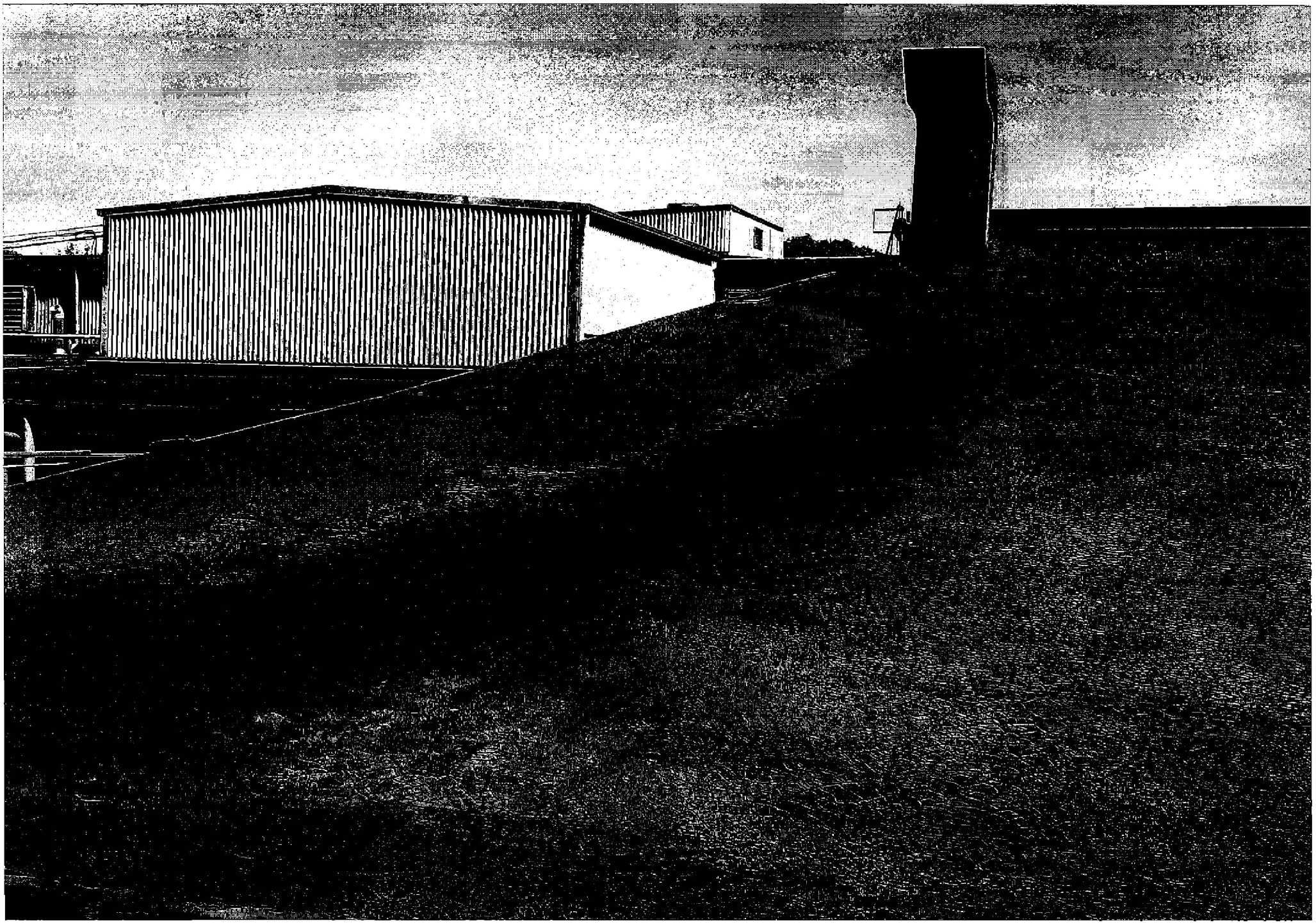
It appears that at least one of the cartridges replaced on the dust collector used at the Bi mill for V-2046 was installed backwards.

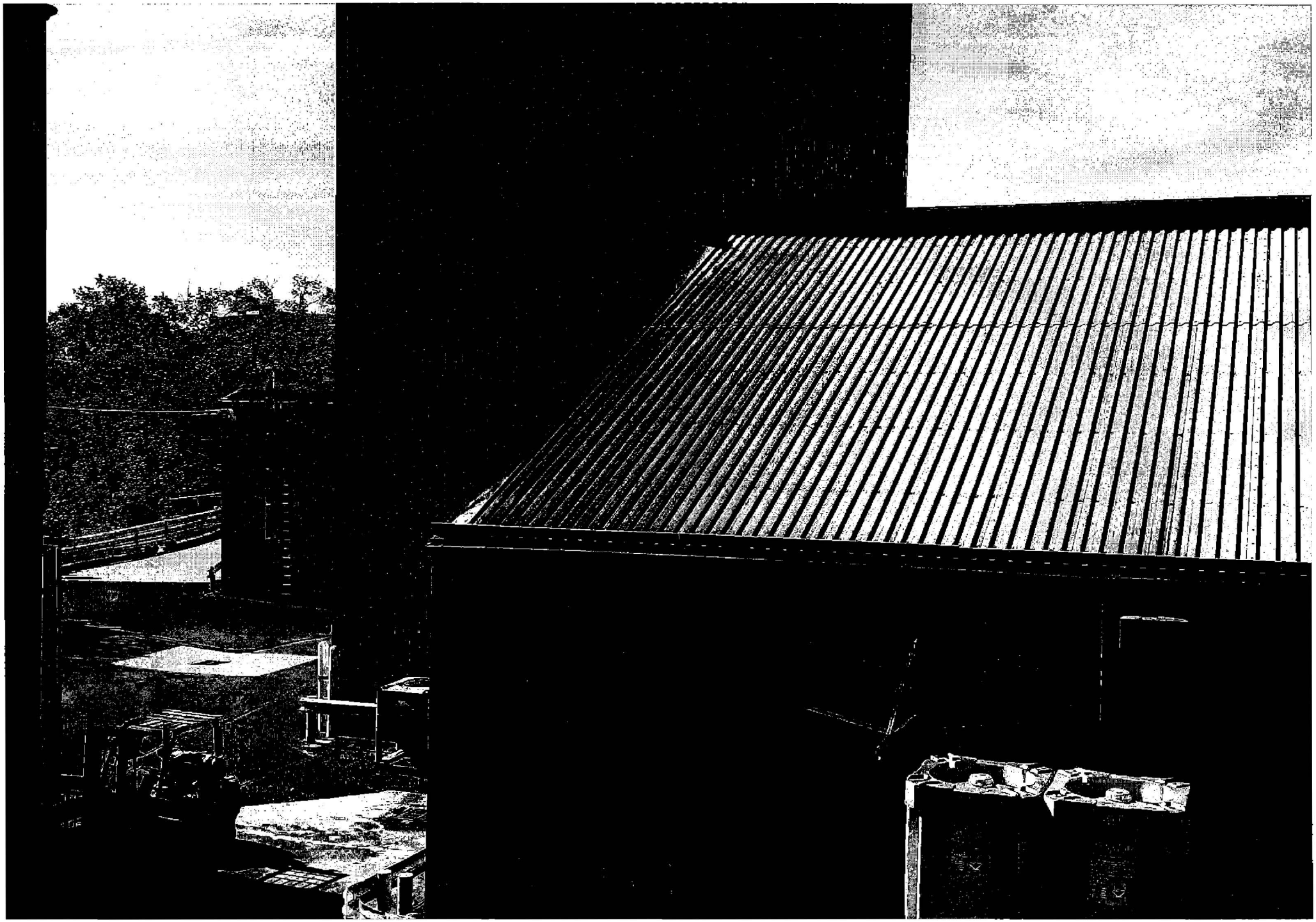
Contributing Causes	Root/Primary Causes		
Unable to determine if operator was properly trained in how to install the cartridges in the dust collector.	163 - Training	170 - Training LTA	175 - On-the-Job Training LTA
There isn't a procedure readily available that describes the proper installation / orientation of the Torit bag house filters at the Bi mill area in building 10.	111 - Procedures	112 - Not Used	116 - No Procedure for Task

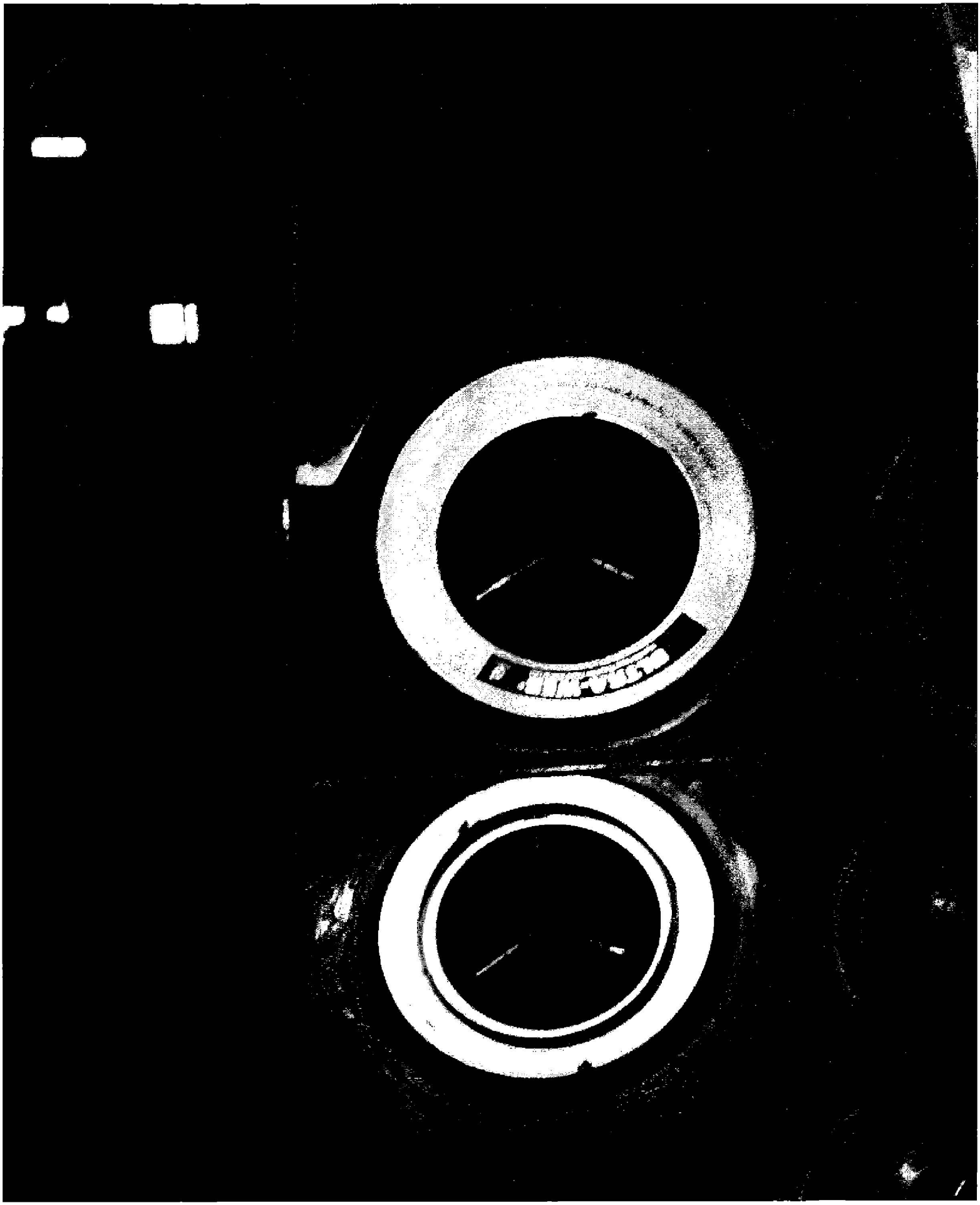
Any known or potential off-site impacts?	No	PSM Incident?	No	Estimated Cost:	100.00 USD
Investigation Team	Raymond A Navarro; John R Crawford; John Pycraft; Andre Washington; Paula M Taylor				

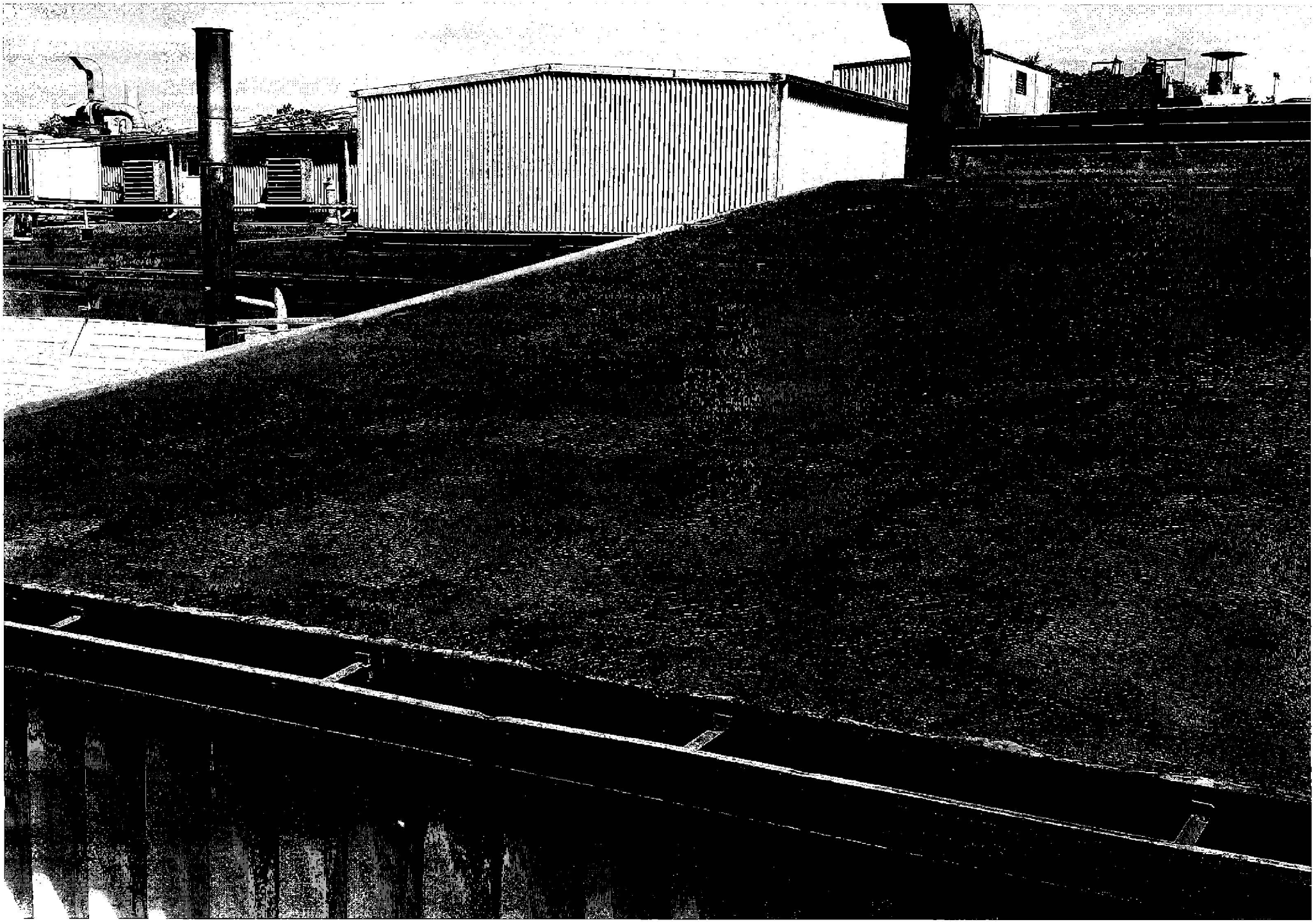
Item	Corrective Action(s) to prevent recurrence	Responsible Person	Target Date	Final Closed Date	VC Req	VE Req
1	Operating procedure EOP0097 needs to be reviewed and an addition needs to be implemented to describe the proper manner and orientation in which the Torit bag house filters must be inserted.	Raymond A Navarro/NA/BASF	09/01/2014	08/31/2014	N	N

Approved By:		
Manager / Dept. Head	Leon Zavodnik	06/29/2014 03:05 PM
EHS Unit Coordinator	Tim Anglin	07/07/2014 07:33 AM
	Confidential	









BASF
The Chemical Company

Material Safety Data Sheet

MSDS Code: 0580004

V-2046 P

Revision date: 10/30/06 **Date Printed:** 06/13/07

NFPA Classification:		HMIS Classification:	
Health:	2	**Health:**	2 *
Flammability:	0	**Flammability:**	0
Instability:	0	**Physical Hazard:**	0
Special Hazards:		**Personal Protection:**	B

* Indicates possible chronic health effects.

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemical Name: Chemical Mixture

Product Use: Industrial catalyst.

Supplier:
BASF Catalysts LLC
100 Campus Drive
Florham Park, NJ 07932

For Chemical Emergency Call:
BASF Hotline: 1-800-832-HELP
CHEMTREC (24 hours):
1-800-424-9300 (US, Canada, Puerto Rico, Virgin Islands)
1-703-527-3887 (Outside Above Area)

2. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient CAS Number	Weight in Percent (%)	Notes
Silica, Amorphous 7631-86-9	45-60	None.
Vanadium Pentoxide 1314-62-1	35-50	None.
Alumina 1344-28-1	5-10	None.
Sodium Oxide 1313-59-3	1-3	None.

Other Information:
NOTE: The percentage by weight values reported for this product represent approximate formulation values.

3. HAZARDS IDENTIFICATION

Emergency Overview:

Color:	Yellow green to brown
Form:	Powder
Odor:	Odorless
Flash Point, °C:	Not Determined

Most Important Hazards: Overexposure may cause lung, kidney and liver damage. Irritating to eyes, respiratory system and skin. May cause allergic respiratory reactions. May cause an allergic skin reaction. Harmful if swallowed. May cause pain, nausea, vomiting and diarrhea. May cause spasms, convulsions and death.

Potential Health Effects:

Inhalation: Causes respiratory tract irritation. May result in coughing, difficulty breathing and sore throat. May cause allergic respiratory reaction. Overexposure may cause kidney and liver damage, tremors, and may result in headache, nausea and vomiting.

Ingestion: Harmful if swallowed. May cause pain, nausea, vomiting and diarrhea. May cause tongue discoloration. May cause liver and kidney damage. May cause spasms, convulsions and death.

Skin Contact: Causes skin irritation. May cause a rash and itching of the skin. May cause an allergic skin reaction.

Eye Contact: Causes eye irritation. May cause pain and tearing. May cause a burning sensation. May cause corneal injury.

Carcinogenicity:

Ingredient CAS Number	Weight in Percent (%)	NTP (Y/N)	IARC (See Notes)	OSHA (Y/N)	ACGIH (See Notes)
Silica, Amorphous 7631-86-9	45-60	N	N3	N	N
Vanadium Pentoxide 1314-62-1	35-50	N	N	N	A4
Alumina 1344-28-1	5-10	N	N	N	A4
Sodium Oxide 1313-59-3	1-3	N	N	N	N

Notes:
IARC: Y1=Carcinogenic to humans; Y2A=Probably carcinogenic to humans; Y2B=Possibly carcinogenic to humans; N3=Not classifiable as to its carcinogenicity; N=Not studied or probably not carcinogenic.
ACGIH: A1=Confirmed human carcinogen; A2=Suspected human carcinogen; A3=Confirmed animal carcinogen; A4=Not classifiable as a human carcinogen; A5=Not suspected as a human carcinogen; N=Not studied.

Chronic Health Hazards: Prolonged or repeated inhalation may cause chronic bronchitis and possibly emphysema.
Refer to Potential Health Effects.

Aggravated Medical Conditions: Pulmonary disorders. Dermal ailments.

4. FIRST AID MEASURES

Inhalation: Move person to fresh air. Aid in breathing, if necessary, and get immediate medical attention.

Ingestion: Get immediate medical attention.

Skin Contact: Wash with soap and water. Get medical attention if irritation persists.

Eye Contact: In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

5. FIRE FIGHTING MEASURES

Flash Point, °C: Not Determined
Autoignition Temperature, °C: Not Determined
Lower Explosive Limit, %: Not Determined
Upper Explosive Limit, %: Not Determined

Extinguishing Media: Water. Carbon dioxide. Foam.

Fire Fighting Procedures: Positive pressure, self-contained breathing apparatus. Wear full protective clothing.

Unusual Fire and Explosion Hazards: Not a fire or explosion hazard. Toxic vapors are emitted in a fire condition.

6. ACCIDENTAL RELEASE MEASURES

Spill Procedures: Contain spillage. Scoop up or vacuum into a container for reclamation or disposal. Avoid dusting.

7. HANDLING AND STORAGE

- Keep container closed.
- Store in a cool, dry location away from incompatible materials.
- Wash thoroughly after handling.
- Avoid generating or breathing dust.
- Avoid contact with eyes, skin and clothing.
- Use only with adequate ventilation.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredient CAS Number	Weight in Percent (%)	OSHA PEL	ACGIH TLV
Silica, Amorphous 7631-86-9	45-60	20 mppcf or 80 mg/m³ ÷ %SiO2	10 mg/m³ (Inhalable fraction) 3 mg/m³ (Respirable fraction)
Vanadium Pentoxide 1314-62-1	35-50	0.5 mg/m³ Ceiling (Respirable dust and fume) 0.1 mg/m³ Ceiling (Fume)	0.05 mg/m³ (Respirable dust and fume)
Alumina 1344-28-1	5-10	15 mg/m³ (Total dust) 5 mg/m³ (Respirable dust)	10 mg/m³
Sodium Oxide 1313-59-3	1-3	None Established	None Established

Unless otherwise noted, all values are reported as 8-hour Time-Weighted Averages (TWAs) and total dust (particulates only). All ACGIH TLVs refer to the 2006 standards. Unless otherwise noted, all OSHA PELs refer to 29 CFR Part 1910 Air Contaminants: Final Rule, June 30, 1993.

Personal Protective Equipment: Wear safety glasses or goggles to protect against exposure. Rubber or neoprene gloves. Wear clean, body-covering clothing.

Respiratory Protection: Use approved respiratory protection if exposure limits are exceeded, or overexposure is likely. If respiratory protection is used, follow all requirements for respiratory programs set forth in OSHA regulations (29 CFR 1910.134).

Ventilation: General ventilation. Local exhaust ventilation is recommended to control exposures to within applicable limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Powder
Color: Yellow green to brown
Odor: Odorless

Melting Point, °C: 700
Specific Gravity: **Min:** 1.2 **Max:** 1.3g/cc
Solubility (in water): Insoluble

10. STABILITY AND REACTIVITY

Stability Data: Stable

Conditions/Hazards to Avoid: None anticipated

Incompatibility (Materials to Avoid): Acids. Strong oxidizing agents.

Hazardous Decomposition Products: Oxides of vanadium.

Polymerization: None anticipated.

Polymerization - Avoid: None anticipated.

11. TOXICOLOGICAL INFORMATION

Information on Product:
No data available.

Information on Components:

Ingredient CAS Number	Weight in Percent (%)	Acute Toxicity - Oral	Acute Toxicity - Inhalation	Acute Toxicity - Dermal	Acute Toxicity - Other
Silica, Amorphous 7631-86-9	45-60	3,160 mg/kg (rat)	Not Available	Not Available	Not Available
Vanadium Pentoxide 1314-62-1	35-50	10 mg/kg (rat)	Not Available	Not Available	Not Available
Alumina 1344-28-1	5-10	Not Available	Not Available	Not Available	Not Available
Sodium Oxide 1313-59-3	1-3	Not Available	Not Available	Not Available	Not Available

12. ECOLOGICAL INFORMATION

Information on Product:

Environmental Fate: No data available.

Ecotoxicological Information: No data available.

13. DISPOSAL CONSIDERATIONS

US EPA Waste Number: Not Regulated
Disposal of Waste Method: Federal, state and local disposal laws and regulations will determine the proper waste disposal/recycling/reclamation procedure. Disposal requirements are dependent on the hazard classification and will vary by location and the type of disposal selected. All waste materials should be reviewed to determine the applicable hazards (testing may be necessary).

14. TRANSPORT INFORMATION

International Transport Regulations:

ICAO UN/ID No: UN3285
ICAO Class: 6.1
Proper shipping name: Vanadium compound, n.o.s.
ICAO Packing Group: III
Packing Instruction: 619

IMO UN No: UN3285
IMO Class: 6.1
IMO Proper shipping name: Vanadium compound, n.o.s.
Packing Group: III
EmS No.: F-A,S-A

US Transportation Regulations:

UN/NA/PIN Number: UN3285

DOT Classification: 6.1 Poisonous materials
Proper Shipping Name: Vanadium compound, n.o.s. (Toxic)
Packing Group: III
RQ: Vanadium Pentoxide (1000 lbs)

Canadian Transportation of Dangerous Goods (TDG):
TDG Classification: 6.1 Poisonous materials

15. REGULATORY INFORMATION

International Inventories:

United States: This product or its ingredients are listed on or compliant with the TSCA Inventory.
Canada: This product or its ingredients are listed on or compliant with the DSL.
Europe: This product or its ingredients are listed on or compliant with EINECS.
Japan: This product or its ingredients are listed on or compliant with MITI.
Australia: This product or its ingredients are listed on or compliant with AICS.
Korea: This product or its ingredients are listed on or compliant with the ECL.
Philippines: This product or its ingredients are listed on or compliant with PICCS.
China: This product or its ingredients are listed on or compliant with the IECSC.

US Federal Regulations:

Ingredient CAS Number	Weight in Percent (%)	Subject to SARA 313 Reporting
Silica, Amorphous 7631-86-9	45-60	No
Vanadium Pentoxide 1314-62-1	35-50	Yes
Alumina 1344-28-1	5-10	No
Sodium Oxide 1313-59-3	1-3	No

SARA 311/ 312 Hazard Categories:
Acute Health Hazard Chronic Health Hazard

CAA 602 Ozone Depleting Substances (ODS):
This product neither contains nor is manufactured with an ozone depleting substance subject to the labeling requirements of the Clean Air Act Amendments 1990 and 40 CFR Part 82.

US State Regulations:

VOC Content (CARB): Not Determined

Canadian Regulations:
WHMIS Classification:
Class D Division 1 Subdivision A
Class D Division 2 Subdivision A
Class D Division 2 Subdivision B
This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations* .

16. OTHER INFORMATION

Revision number: 2

Section(s) Revised in this Version: Section 1: Chemical Product and Company Identification
Section 16: Other Information

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